Environmental Safety Division
UNIVERSITY OF GEORGIA

Neutralization Guide

Before neutralizing, please review any applicable safety references such as safety data sheets to ensure appropriate protective measures, spill supplies, and first aid procedures.

Mineral acids and bases may be neutralized and the resulting salt solutions flushed down the drain, provided that the material is not hazardous for any other reason. Hazardous waste may have up to (4) potential "characteristic properties" as defined by the EPA: ignitability, corrosivity, reactivity, and toxicity. Therefore, hazardous waste that is regulated *only* for the characteristic of corrosivity (pH <=2 and pH >=12.5) can be neutralized and drain disposed.

Waste must meet **ALL** of the following to be neutralized drain disposed:

- The **ONLY** hazard is the corrosivity characteristic. It can not contain any underlying hazardous constituents, i.e. heavy metals or trace organic solvents.
- The waste must be brought to a pH between 5 and 9 in order to comply with local waste water treatment plant regulations before drain disposal
- If the hazardous waste is being accumulated for any time prior to neutralization, the container must have the words “Hazardous Waste” displayed along with an accurate description of the contents. Additionally, the cap/lid must be kept on the container at all times unless adding waste

Appropriate PPE must be worn and the activity must take place under a fume hood using accepted neutralization procedures to ensure safety.

Basic Neutralization Steps:

- Prepare a **dilute** aqueous solution of the acid or base in a beaker or wide-mouth flask.
    - Always add acid or base to an excess of water. Never add the water to the acid or base, because the heat generated may be enough to boil the water, and expel the substance violently from the container.
    - Set the container in a plastic tub containing ice-water while preparing the solution.
- Similarly, prepare a dilute solution of sodium hydroxide if you wish to neutralize an acid, or hydrochloric acid if you are neutralizing a base. Cool this solution in ice-water also.
- Using pH paper or a pH meter, and keeping the receiving flask in the ice-bath, neutralize to pH between 5 and 9. Stir well while mixing the solutions.
- Turn on the cold water in the sink to a vigorous stream, and flush the neutralized solution down the drain.

Please contact the ESD Hazardous Materials Program at (706) 542-5801 or hazmat@uga.edu with questions about specific chemicals or with any questions about neutralization.